

**IDAHO DEPARTMENT OF FISH AND GAME**

**ANNUAL REPORT  
CLEARWATER HATCHERY  
1992**

**Prepared by:**

**Doug Burton, Fish Hatchery Superintendent I**

## INTRODUCTION

Clearwater Fish Hatchery is located on the north bank of the North Fork of the Clearwater River, at the confluence of the North Fork and the mainstem of the Clearwater River in Clearwater County, Idaho. The hatchery was built by the Corps of Engineers under the Lower Snake River Compensation Plan (LSRCP) and was completed in 1992. The hatchery is funded through the U.S. Fish and Wildlife Service, who will also own the facility when all construction is complete. The hatchery is operated by the Idaho Department of Fish and Game (IDFG).

The primary purpose for Clearwater Hatchery is to rear and release anadromous steelhead trout and chinook salmon as mitigation for the Lower Snake River dams. However, full production of anadromous fishes will not be achieved for some time, leaving facilities available for rearing resident rainbow trout to meet IDFG's catchable stocking requests in Region 2. The first year's production will be funded through LSRCP as experimental fish to test out the new facilities at the hatchery. Subsequent rainbow production will be funded by IDFG.

The hatchery water source is a double pipeline from Dworshak Dam, which can supply over 60 cfs of reservoir water to the facility. There are two intakes at the dam. The primary intake is adjustable to take water from the reservoir surface (5 feet to 40+ feet depth). The secondary intake is at a fixed depth (200+ feet below full level). This design allows blending waters of different temperatures during the portion of the year when the reservoir is stratified.

## FISH PRODUCTION

The first fish ever reared at Clearwater Hatchery were the 1992 lot of Mt. Lassen (R4) rainbow trout (Mt. Lassen Trout Farms, Inc., Red Bluff, CA). These fish will be raised to catchable size for stocking in 1993. As of December 31, there were 255,350 Mt. Lassen rainbow trout on hand weighing a total of 48,400 pounds (Table 1). This lot of fish consumed 54,340 pounds of fish food for a food-to-fish conversion rate of 1.12:1. Production costs were high (Table 2) because the hatchery was far below capacity in the first year of production.

Clearwater also received catchable rainbow trout from Nampa Hatchery for redistribution. These fish were held for varying periods of time before stocking and were fed a maintenance diet. The maintenance strategy was successful in that fish quality remained constant while increase in individual fish weight was held to about +4%.

A lot consisting of 246,627 rainbow eggs (R1-unspecified strain) were delivered to Clearwater on December 23 from Black Canyon Trout Farm in Grace, ID. These are intended to fill the 1994 catchable trout requests in Region 2. The eggs have not hatched at the end of the report period.

## FISH HEALTH

The Mt. Lassen rainbow have not done well at Clearwater Hatchery. Problems were encountered at first feeding when approximately 1% of the fish demonstrated swimming/buoyancy problems. The swim bladders were full, and bubbles were evident in the gastrointestinal tract. Mortality steadily increased, but the buoyancy problems disappeared. Losses of fry in March and April were over 22% (100,000 fish). Eagle Laboratory was able to isolate Pseudomonas species of bacteria (Table 3), but none of the signs were consistent with diseases typically

CLEARWTR

caused by these etiologic agents. The fish were fed TM-100 feed and water temperatures were increased, but the episode seemed to run its course regardless of treatments. Mortalities increased again in July and August (about 6% total losses), with Pseudomonas species being isolated. Again, clinical signs were inconsistent. Medicated feed (TM-100) was administered with uncertain results, although mortalities dropped to about 0.3% per month for September through December. There was a chronic loss during fall and winter of fish showing abnormal swimming behavior (suggesting a neural infection), but no etiologic agents were isolated.

There were no health problems among the catchable rainbow trout received from Nampa Hatchery.

Recommendations to improve fish health include trying a different strain of rainbow, or shifting the timing so that eggs and fry will have warmer water temperatures. The Mt. Lassen strain fish have had a history of problems at other Idaho facilities (Doug Munson, personal communication), and another strain may be less susceptible to ubiquitous pathogens. Another strain may also be more adapted to the extended incubation period resulting from the cold water Clearwater Hatchery must use during the mid-winter months.

This all may have been an example of "New Hatchery Syndrome" because the fish were subjected to a number of stresses which we should be able to avoid in the future. A few more seasons may be necessary to work all the "bugs" out of the Clearwater Hatchery facilities.

#### **FISH STOCKED AND TRANSFERRED**

The Clearwater Hatchery Resident Program was originally intended to take over the catchable trout outplants which were once made from the Kamiah Holding Ponds. No fish were available at Clearwater Hatchery since this was the first year of operation. Therefore, catchable-size trout were transferred from Nampa Hatchery for this purpose.

Clearwater personnel stocked a total of 50,305 Mt. Lassen strain catchable rainbow trout in streams and lakes of Region 2 during 1992. These fish averaged 2.93 fish per pound, for a total weight of 17,178 pounds, and averaged approximately 9.5 inches in length. The original stocking request for Clearwater Hatchery was only 30,500 fish, but we agreed to take some of Nampa Hatchery's small reservoir plants to save transport costs. This added 21,500 fish to Clearwater's stocking requests for a total responsibility of 52,000 fish. Our program met 96.7% of this request.

A number of changes were made in stocking locations and dates due to extremely low water conditions, a result of the extended drought. Specifically, nearly all the creek plants scheduled later than mid-June were cancelled, as well as all the year's plants in Blue Lake and the Lewiston Levee Pond. All changes were discussed with the Region 2 fishery managers, and alternate sites were chosen within the region.

A significant discrepancy was found between the numbers of fish which Nampa Hatchery reported transferring to us and the numbers we were able to stock. Specifically, Nampa Hatchery reports transferring 61,014 fish to Clearwater of which only 50,573 are accounted for (50,305 stocked plus 268 mortalities), leaving a shortfall of 10,441 fish (approximately 3,560 lbs). A few of these can be accounted for by osprey depredation on the holding ponds, but the majority must come from sample count errors, differences in truck calibration, or water accidentally loaded with the fish at Nampa (obviously it was not our error).

CLEARWTR

## **FISH FEED**

A great variety of fish foods were used on the production rainbow trout at Clearwater Hatchery (Table 4). Because these were the first fish ever reared on the hatchery, and because they were intended as an experiment to test out the facility, various manufacture sources and formulations of fish food were tried. The fish were started on Biodiet feed for the first three months. The lot was then split. Part of the fish went to the chinook raceways, where we wanted to test the Garon Feeder system with high moisture pellets. Therefore, these fish were fed Biomoist, Oregon Moist (OP), and Rangen Soft Moist formulations. The rest of the lot went to the steelhead raceways, where the Neilsen Feeder system and our bulk storage system required a dry formulation. Biodry was used until we were able to get the mechanized feeding system operating, then bulk Rangen Salmon Grower was used.

The catchable rainbow trout, transferred to Clearwater Hatchery from Nampa Hatchery, were fed a maintenance diet of Rangen Trout Grower and Low Phosphorous feeds (Table 4).

## **PUBLIC RELATIONS**

Clearwater Hatchery had over 1,000 visitors during the first year of operation. This included two school tours from Orofino. There were also 200 visitors and guests at the Hatchery Dedication on August 22. The first anadromous steelhead lot was in isolation inside the hatchery building, so the resident rainbow trout were the only fish most of the visitors could see.

Hatchery personnel gave presentations on all aspects of the hatchery operation to the Palouse Unit of American Fisheries Society, the Orofino Chamber of Commerce, the Orofino Chapter of the National Association of Retired Federal Employees, the Orofino Kiwanis Club, and the Clearwater Interagency Council on Youth.

Maria Lowry (Bio-Aide/Tour Guide) prepared a pamphlet which highlights a number of the streams and lakes where Clearwater stocked catchable rainbow trout. The pamphlet also has maps to the sites and a generalized stocking schedule to direct anglers. This should help the public to utilize the fish we raise.

## **ACKNOWLEDGEMENTS**

The Clearwater Hatchery crew is large and are assigned a wide diversity of responsibilities. The group primarily responsible for the resident program included Doug Burton (Superintendent I), John Rankin (Fish Culturist), Ric Downing (Fishery Technician), and Lisa Phipps, June Morse, Ron Reardon, and Bob Manzer (Bio-Aides). Others on the crew who provided valuable assistance included Brad George (Superintendent I), Dan Baker and Kent Bourbon (Fish Culturists), Don Davis and Don West (Fishery Technicians), Dave Robertson, Dave Marsanskis, and Shayne Goff (Bio-Aides), Rene'e Hedrick (Secretary), Maria Lowry and Sherri Bothum (Bio-Aides/Tour Guides), and Tyler Rowland and Jose' Sanchez (Laborers).

Special acknowledgement goes to Ernie Yost (Utility Craftsman) who was very important in getting the physical and mechanical aspects of the hatchery to function, and to Jerry McGehee (Superintendent III), who provided the leadership and logistic support that made this operation a success.

CLEARWTR

Table 1. Resident fish production at Clearwater Fish Hatchery, January 1 through December 31, 1992.

Species	Source	Date received	Initial no. received	Destination	Yield <sup>a</sup>
Rainbow (R4)	Mt. Lassen Trout Farm	01/22/92	474,000 (eyed eggs)	Region 2	255,350
Rainbow (R4)	Nampa Hatchery	04/02, 5/12 & 06/23/92	61,014 (catchables)	Region 2	50,305 <sup>b</sup>
Rainbow (R1)	Black Canyon Trout Farm	12/23/92	246,627 (eyed eggs)	Region 2	196,800

<sup>a</sup> Number stocked, transferred, or on hand December 31, 1992.

<sup>b</sup> See text for explanations of number discrepancy.

Table 2. Costs of resident fish production at Clearwater Fish Hatchery, January 1 through December 31, 1992.

Species/ strain	Pounds produced	Number produced	Size (in)	Production costs	Cost per/l	Cost per/fish
Rainbow/R4	48,400	255,350	7.8	\$106,240	\$2.20	\$0.42
Rainbow/R4 <sup>a</sup>	--	--	9+	\$ 9,375 <sup>b</sup>	\$0.55	\$0.19
				\$115,615		

<sup>a</sup> Fish received as catchables from Nampa Hatchery and stocked out.

<sup>b</sup> Maintenance feed cost plus estimated cost to stock fish in streams and reservoirs of Region 2.

Table 3. Clearwater Hatchery resident fish health summary, January 1 through December 31, 1992. (Eagle Fish Health Laboratory Report).

Stock	Species	Sample date	VH	VP	BK	BF	BR	BC	Comments
Mt. Lassen	Rbt	3/25	-	-					viro 0/10
Mt. Lassen	Rbt	4/14	-	-		-	-	-	viro 0/15, <u>Ps. Aeruginosa</u> , <u>Ps. fluorescens</u>
Mt. Lassen	Rbt	7/22	-	-		-	-	-	viro 0/10, 3/8 BC (moderate) 1/8 <u>Plesiomonas</u> low
Mt. Lassen	Rbt	7/24	-	-					viro 0/10
Mt. Lassen	Rbt	7/29	-	-					viro 0/20
Mt. Lassen	Rbt	8/16	-	-		-	-		6/16 <u>Ps. fluorescens</u> , 4/16 <u>Ps. putida</u> , OTC resistant, viro 0/2
Mt. Lassen	Rbt	12/16	-	-	-				viro 0/10, BK (FAT) 0/10, bacte neg.

+ = positive results

- = negative results

VH = IHNV, infectious Hematopoietic necrosis virus

VP = IPNV, infectious pancreatic necrosis virus

BK = bacterial kidney disease agent, Renibacterium salmoninarum

BF = bacterial furunculosis, Aeromonas salmonicida

BR = enteric red mouth bacterium, Yersinia ruckeri

BC = Bacterial cold water disease, Cytophaga psychrophila or Flexibacter psychrophilus

BR = enteric red mouth bacterium, Yersinia ruckeri

BC = Bacterial cold water disease, Cytophaga psychrophila or Flexibacter psychrophilus

Table 4. Fish feed usage and costs for the Clearwater Hatchery rainbow trout program, January 1 through December 31, 1992.

Lot	Source	Formulation	Size	Pounds	Cost per Pound	Total cost
91-CA-R4	Bioproducts	Biodiet	#1	60	0.8165	48.99
	Bioproducts	Biodiet	#2	150	0.8165	122.48
	Bioproducts	Biodiet + TM100	#2	135	0.9622	129.90
	Bioproducts	Biodiet	#3	390	0.8165	318.43
	Bioproducts	Biodiet + TM100	#3	132	0.9622	127.01
	Bioproducts	Biodiet	1.0 mm	555	0.6804	377.62
	Bioproducts	Biodiet	1.3 mm	390	0.6396	249.44
	Bioproducts	Biodiet	1.5 mm	310	0.6577	203.89
	Bioproducts	Biomoist	1.5 mm	500	0.5400	270.00
	Bioproducts	Biodry 4000	1.5 mm	1,900	0.5200	988.00
	Bioproducts	Biodry 4000	2.4 mm	2,935	0.4600	1,350.10
	Bioproducts	OP-4	1/16 in	600	0.4420	265.20
	Bioproducts	OP-2	3/32 in	265	0.3420	90.63
	Bioproducts	OP-2	1/8 in	2,000	0.3420	684.00
	Bioproducts	Biodiet + TM100	3.0 mm	882	0.8809	776.95
	Bioproducts	Biomoist	3.0 mm	500	0.5150	257.50
	Rangen	Salmon Grower bulk	1/8 in	11,835	0.2610	3,088.94
	Rangen	Salmon Grower sacked	1/8 in	5,416	0.2660	1,440.66
	Rangen	Soft moist	5/32 in	13,992	0.5600	7,835.52
	Rangen	Trout Grower	5/32 in	50	0.2980	14.90
	Rangen	Lo-P	5/32 in	3,485	0.2610	909.59
	Rangen	Grower	5/32 in	7,858	0.4050	3,182.49
		+ TM100				
			TOTAL	54,340		\$22,732.24
91-20-R4	Rangen	Salmon Grower	1/8 in	2,100	0.2350	493.50
	Rangen	Trout Grower	5/32 in	1,000	0.2980	298.00
			TOTAL	3,100		\$791.50



Submitted by:

John R. Thorpe, Superintendent II  
Ralph Steiner, Superintendent I  
Bruce C. Thompson, Superintendent I  
Daniel J. Beers, Superintendent II  
Bill H. Harryman, Fish Culturist  
Mary Van Broeke, Hatchery Coordinator  
Robert D. Hill, Superintendent I  
Richard L. Lowell, Superintendent I  
Robert C. Morris, Fish Culturist  
Thomas S. Frew, Superintendent III  
Robert Esselman, Superintendent II  
Douglas S. Young, Superintendent I  
Brian Malaise, Fish Culturist  
Gary C. Baker, Superintendent II  
David Billman, Superintendent I  
Kurtis Schilling, Fish Culturist  
Arnold J. Miller, Superintendent II  
Todd Garlie, Superintendent I  
Ron Reardon, Fish Culturist  
William C. Doerr, Superintendent II  
Douglas Engemann, Superintendent I  
R. Mick Hoover, Fish Culturist  
Jerry Chapman, Superintendent II  
Melvin P. Sadecki, Superintendent I

Thomas Herron, Superintendent I  
William R. Stutz, Fish Culturist  
Scott Patterson, Superintendent I  
John T. Siple, Superintendent I  
Douglas Burton, Superintendent I

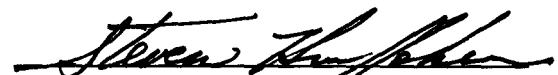
Compiled by:


Mike Larkin  
Resident Hatchery Supervisor

Sherri Moedl  
Technical Typist

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME

  
Steven M. Huffaker, Chief  
Bureau of Fisheries

  
Bill Hutchinson  
Fish Hatcheries Manager